Title: Tall Tale Rollers

Brief Overview:

The study of tall tales is a motivating literature unit which appeals to a variety of people. In addition to providing enjoyment, it exposes its readers to a fascinating aspect of American culture. Following a study of the six tall tale characters*, intermediate students will explore probability as they attempt to "collect" tall tale figures.

* Students need to be familiar with the six tall tale characters prior to beginning this unit.

Link to Standards:

- **Problem Solving** Students will demonstrate their ability to solve problems in mathematics, including problems with open-ended answers and problems which are solved in a cooperative atmosphere.
- **Communication** Students will demonstrate their ability to communicate mathematically. They will read, write, and discuss mathematics with language and the signs, symbols, and terms of the discipline.
- **Reasoning** Students will demonstrate their ability to reason mathematically. They will make conjectures, gather evidence, and build arguments.
- **Connections** Students will demonstrate their ability to connect mathematics topics within the discipline and within the Language Arts curriculum.
- **Statistics** Students will demonstrate their ability to collect, organize, and display data and will interpret information obtained from displays. They will write descriptive paragraphs that interpret data.
- **Probability** Students will demonstrate the basic concepts of probability, such as predicting and finding probabilities. Students will predict and find the probability of a situation with equally likely outcomes.

Grade/Level:

Grades 4-6

Duration/Length:

This unit will take 3 or 4 periods (50 min.).

Prerequisite Knowledge:

Students should have working knowledge of the following skills:

- Collecting, organizing, and displaying data
- Interpreting and analyzing graphic representations of data
- Communicating effectively using mathematical language
- Using proper business letter form
- Identifying the components of "FAT P" (Teacher Resource #1)

Objectives:

Students will:

- construct visual display of collected data.
- explore basic probability concepts.
- use written and oral language to communicate analysis of data.
- work in cooperative groups to reach a consensus.

Materials/Resources/Printed Materials:

- Chart paper (lined and unlined)
- Rulers or meter sticks
- Markers or crayons
- Dice (1 per student)
- Post-It notes
- Student Resource Sheets #1-4
- Teacher Resource Sheet #1
- American Tall Tales by Mary Pope Osborne
- Cut From the Same Cloth: American Women of Myth, Legend, and Tall Tale by Robert D. SanSouci and Brian Pinkney

Development/Procedures:

Activity 1:

- Arrange students in cooperative groups (3 or 4 students in each group).
- Conduct an informal class survey to determine each student's favorite tall tale character.
- Have available materials necessary to construct a variety of graphic representations.
- Instruct each group to organize and display class data by using an appropriate format (pie chart, line plot, bar graph, etc.).
- Have each group exhibit and orally present its display.
- Ask students to interpret their group's graphic representation by writing a paragraph about it (Teacher may assign paragraph to be done as a group of individually.).

Activity 2:

- Post and review student-created graphs/charts from Activity 1.
- Distribute Student Resource Sheets #1 and #2 and dice.
- Instruct students to read scenario, "Figure" It Out, and complete the tasks.
- Circulate to monitor student progress; assist where necessary.
- Using the Think-Pair-Share strategy, students will decide upon the most appropriate graph to display the collected data from Resource Sheet #2. (Guide them toward using line plot.)
- Create line plot on chalkboard -- the scale to be determined based on the spread of the data.
- Distribute Post-It notes and have students label with their names.
- Place notes on line plot corresponding to the number of Merry Meals they found that needed to be purchased to collect all six figures.
- Interpret and discuss as a class the displayed data.

Note: Save line plot for use with Activity 3.

Activity 3:

- Review components of "FAT P", if necessary.
- Distribute Student Resource Sheets #3 and #4.
- Clarify directions for the writing task and review assessment criteria before children begin working independently.

Performance Assessment:

Activity 1:

It is recommended that formative assessment strategies be used. The teacher will be able to assess student progress toward the following outcomes: Communication, Reasoning, and Statistics. Students may be assessed on criteria which includes: working cooperatively with others, deciding which graphic representation is most appropriate for the data, and using mathematical language related to statistics.

Activity 2:

Again, formative assessment strategies are suggested. Student progress toward the mathematics outcomes of Problem Solving, Communication, Reasoning, Probability, and Statistics can be assessed by teacher observation. The closure activity allows the teacher to check for whole-group understanding of key statistical concepts.

Activity 3:

This summative activity is a formative, authentic assessment of the learning unit. It addresses all identified Mathematics Outcomes and provides a natural connection to the Language Arts discipline. An assessment tool (Student Resource #4) is provided to allow for self-evaluation by students and for use by the teacher.

Extension/Follow Up:

Math

- Students can predict and investigate how the probability would vary as the number of characters increased/decreased.
- Use data from Activity 2 to teach Box Plot.

Language Arts

- Students may write an original tall tale using themselves as the hero/heroine.

Technology

- Students may use a software program to create computer-generated graphic representations.

Art

- Challenge students to design another character (human or animal) or an item related to the setting or plot of a particular tall tale.

Music

- Students may listen to music from a variety of geographic regions and match it to the setting of selected tall tales.

Authors:

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F: FORM OF WRITING (i.e., business letter, friendly letter, advertisement, etc.)

A: AUDIENCE (i.e., to whom or for whom you are writing)

T: TOPIC OF WRITING PIECE (i.e., what you are writing about)

P: PURPOSE FOR WRITING (i.e., writing to inform, writing for personal expression, or writing to persuade)

"Figure" It Out

McDougall's, a local fast food restaurant, has recently begun a terrific promotion! It is offering one figure of an American tall tale character with every purchase of a child's Merry Meal. There are six (6) different tall tale characters being offered in this promotion: Johnny Appleseed, Pecos Bill, Paul Bunyan, Febold Feboldson, John Henry and Annie Christmas. Having just learned about these characters in school, you have a great interest in collecting all six figures! You want to find out how many Merry Meals would you have to buy in order to collect one of each.

- What is the least number of meals that you would have to purchase to get a complete set of figures?

  _____

- Mark an "X" on the scale below to show how likely this would be to occur.

|_____|
0 2
Impossible Unlikely Likely Certain

Predict how many Merry Meals you would actually need to buy in order to obtain all six (6) figures.

Write your prediction. _____

Explain your reasoning for your prediction.

_____

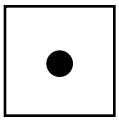
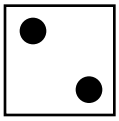
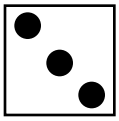
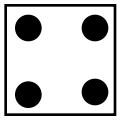
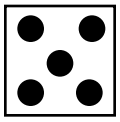
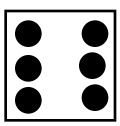
_____

_____

_____

Character/Frequency Chart

Toss the die and record the outcomes on the frequency table. Continue to toss the die until you have at least one of each character.

Characters	Tally
 Johnny Appleseed	
 Pecos Bill	
 Paul Bunyan	
 Febold Feboldson	
 John Henry	
 Annie Christmas	

Total # of rolls (or Merry Meals) purchased _____

Tall Tale Writing Prompt

Based on the data you have collected in Activity 2, write a persuasive business letter to the president of McDougall's suggesting an alternative way to obtain all six (6) figures. Be sure to include results of the class data to support your ideas. After completing the organizer below you may begin your letter on lined paper.

F: _____

A: _____

T: _____

P: _____

Writing Assessment Tool

LEVEL	THINGS TO LOOK FOR!!
4 OUTSTANDING	* Consistently used persuasive language to explain idea. * Used class data to support idea. * Used a variety of mathematical terms in complete sentences. * Used correct business letter format.
3 GOOD	* Used persuasive language to explain idea. * Used class data to support idea. * Used mathematical terms in sentences. * Used correct business letter format.
2 FAIR	* Used little persuasive language to explain idea. * Used class data without supporting idea. * Used few mathematical terms in sentences. * Used some parts of business letter format.
1 NEEDS IMPROVEMENT	* Used no persuasive language to explain idea. * Mentioned class data to support idea. * Used no mathematical terms in sentences. * Did not use correct business letter format.